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# (54) Waterproofing shoes with out-turned uppers

(57) A thread-lasted shoe comprises an upper or body portion and a sole (1) in which the upper has an outwardly directed edge which rests on a corresponding stitching edge (3) of the sole and is stitched thereto. The upper edge (2) of the sole (1) is higher than the stitching edge (3) to prevent the ingress of water into the shoe through the seam between the upper and the sole.

FIG. 1

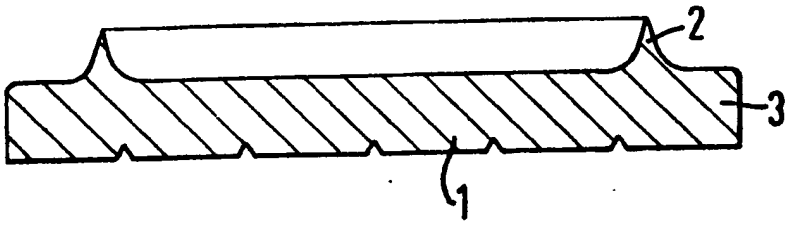


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FIG. 1

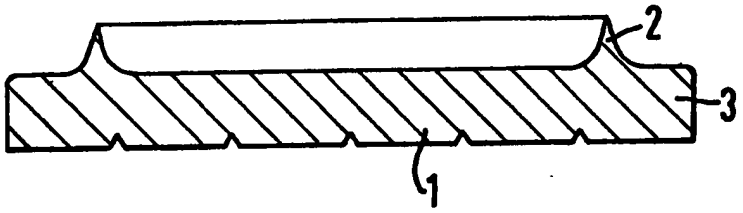



FIG. 2

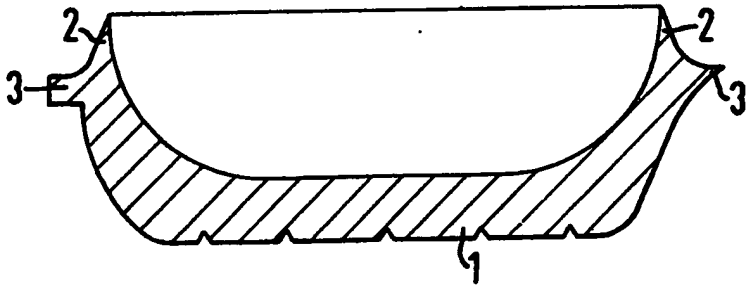



FIG. 3

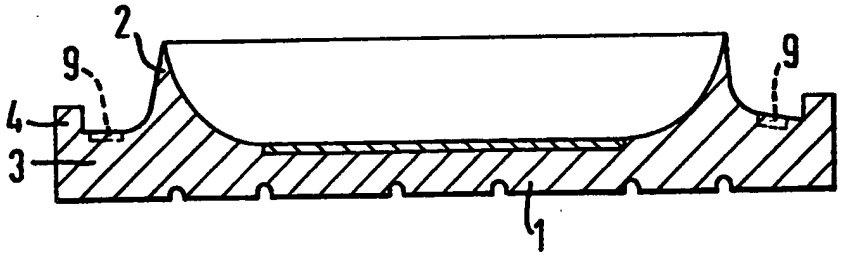


FIG. 4

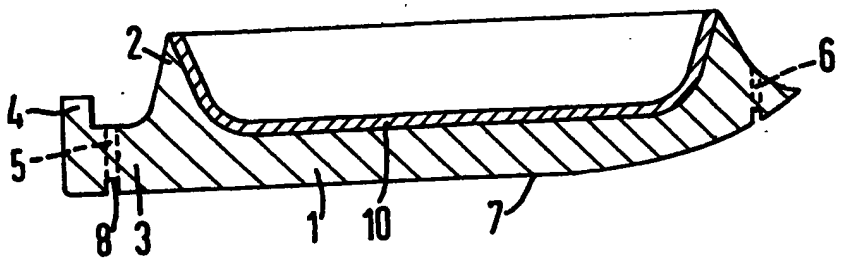



FIG. 5

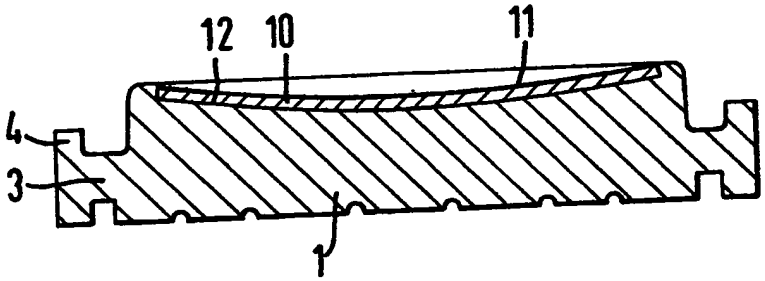
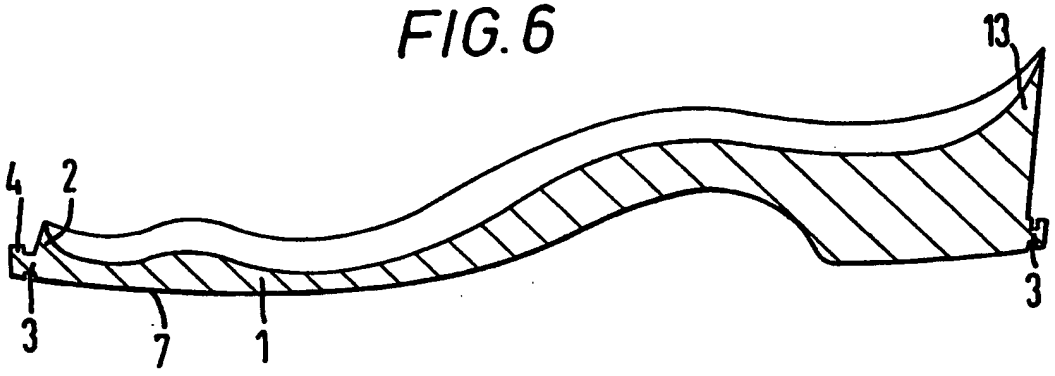



FIG. 6



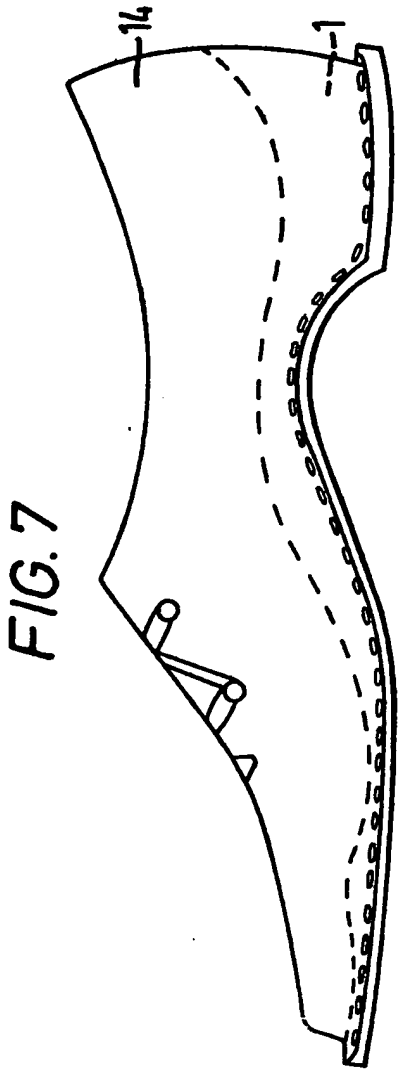



FIG. 7

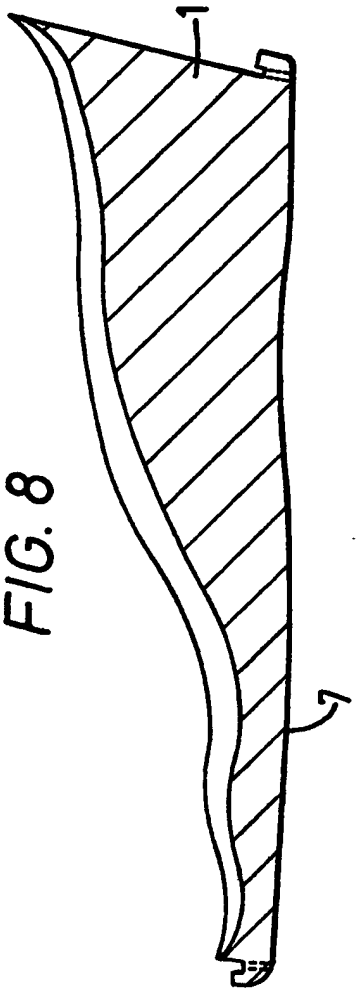



FIG. 8

FIG. 9

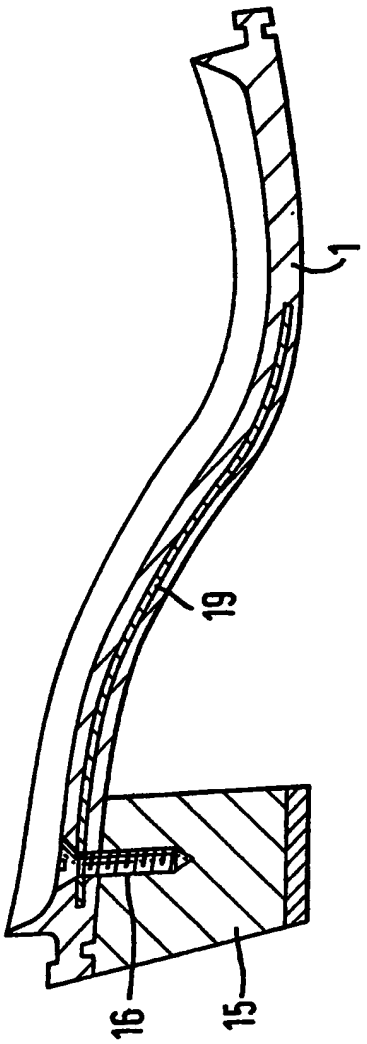
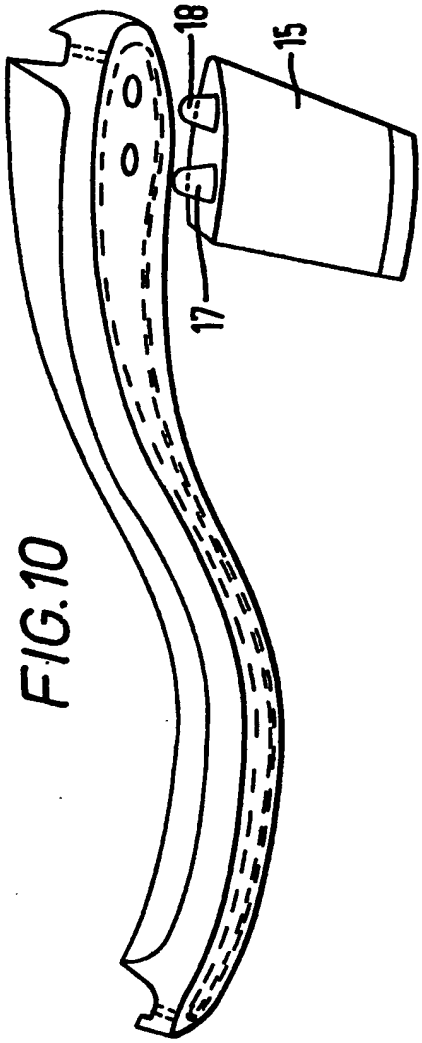



FIG. 10



SPECIFICATION

**Improvements in thread lasted shoes**

This invention relates to a thread-lasted shoe in which the body portion has an outwardly directed edge which rests on a corresponding stitching edge of the sole and is stitched thereto. A shoe of this kind is described in British Patent Specification No. 1,466,859, for example.

In conventional stitched shoes, the body portion, also known as the upper, is usually joined to the sole by having an inwardly directed edge which is clamped between the insole and outer sole and either stitched or glued in position. The seam is always made so that no moisture can penetrate into the shoe.

These conventional stitched shoes are relatively expensive to produce. Therefore, nowadays, shoes are increasingly bought wherein the upper is joined to the sole by glueing. However, adhesively bonded shoes are less hard-wearing than stitched shoes. Moreover, the inherently desirable porosity and flexibility of the leather are lost when adhesive is used. The construction described in the above-mentioned British Patent Specification No. 1,466,859 gives a hardwearing shoe which is extremely cheap to produce but has the disadvantage that water can easily get inside the shoe. This is also true of the other stitched shoes known up till now with outwardly worked body portions or uppers, whether or not they have an insole or inner sole adapted to the shape of the foot, and whether they are attached by staples, thread or adhesive. Even in shoes in which the body portion is additionally attached by adhesive as well as by stitching, it has been found that the compressive stress on the shoe caused by walking detaches the film of adhesive at least partially so that water can easily get inside the shoe.

The present invention aims to solve the problem of constructing a stitched shoe of the type described above so that, despite being very simple to manufacture, it is as waterproof as possible.

According to the invention, there is provided a threadlasted shoe comprising an upper or body portion and a sole, wherein the upper has an outwardly directed edge and the sole has a stitching edge shaped to correspond to the shape of said edge of said upper, said edge of said upper being stitched to said stitching edge of the sole and the upper edge of said sole being higher than the stitching edge.

The shoe according to the invention has the advantage that, in order to get inside the shoe, water penetrating through the seam would have to rise above the elevated sole edge inside the shoe. In practice, this does not happen, and the shoe according to the invention can therefore be regarded as an all-weather shoe. In addition to being waterproof, the construction according to the invention also provides good protection against dust.

Since the stitching edge can be provided with prefabricated holes, it is possible to join the body portion to the sole by hand. Thus, only a narrow edge is required. There is no need for any lasting at all. Thus, the shoe can be assembled by hand without any machinery. The amount of material required for producing the shoe according to the invention is very small because no excess material has to be machined off after stitching.

In an advantageous embodiment of the invention, the sole has a continuous raised edge or border designed to be located inside the upper or body portion. With this arrangement, the foot is particularly well embedded in the sole, thus reducing the risk of the foot extending too far to the side and thus turning over. The shoe according to this embodiment also provides great comfort for walking. At the same time, the stress on the upper is reduced so that the shoe is more durable than conventional shoes or else can be made more cheaply by using thinner material for the upper. The advantage of a good seating for the foot is particularly important in the case of elegant shoes with thin soles. The raised edge inside the shoe makes machine-stitching or doubling easier by acting as a stop for the machine, i.e. serving as a stitching guide. The raised border can also be used as a glueing edge for fastening the upper before stitching.

In another advantageous embodiment of the invention, the outer edge of the sole has an upwardly extending projection. The projection conceals the outer edge of the stitching edge from view. As a result, there is no need for the upper to be neatly cut to size. After stitching there is no need to carry out subsequent machining of the outline of the shoe since the sole alone determines the outer contour of the shoe and the outwardly directed edge of the upper is hidden from view. The edge projection also serves as an abutment edge for glueing the upper in place. With this embodiment, the shoe is made to look like an expensive, frame-stitched shoe, thus making it suitable for elegant footwear.

If, according to another embodiment of the invention, the continuous raised edge is of unequal height, it can be adapted to meet the requirements of an optimum seating for the foot. In the case of sandals, it is also appropriate to raise the border at those points where the straps are attached so as to produc glueing surfaces of adequate size. Compared with known shoes, the shoe according to the invention can easily be made robust by constructing the continuous raised edge as a stiffeningtype reinforcement.

It is also advantageous if the entire inner surface of the sole, including the continuous

raised edge, is covered with a lining sole. The outer sole of the shoe according to the invention can be made in the usual way from a plastics material which is easy to cast or injection-mould, such as for example polyurethane, whilst the lining sole is made from a material which is primarily gentle to the feet, e.g. a material with an antistatic or antimicrobial action. Thanks to the continuous raised-edge, it is possible to make the lining sole so broad that the desired effect is obtained to a particularly great extent. The lining sole may also be placed inside a receiving recess provided in the outer sole, thus saving even more material.

According to another embodiment of the invention, the shoe has a thick sole and the stitching edge extends near the bottom surface of the sole, regardless of the thickness of the sole. In this way, the heel is substantially covered by the upper of the shoe. This gives an aesthetically pleasing, unusual appearance.

The features according to the invention can also be used in a shoe with a block heel or high heel. For this, it is necessary for the stitching edge to extend near the upper edge of the sole and for the heel to be subsequently attached to the sole after the sole has been stitched to the upper.

The invention will now be further described, by way of example, with reference to the drawings, in which:—

*Figure 1* is a cross-section through one embodiment of a sole according to the invention;

*Figure 2* is a cross-section through a second embodiment of a sole according to the invention;

*Figure 3* is a cross-section through a third embodiment of a sole according to the invention;

*Figure 4* is a cross-section through a fourth embodiment of a sole according to the invention;

*Figure 5* is a cross-section through a fifth embodiment of a sole according to the invention;

*Figure 6* is a longitudinal section through a sixth embodiment of a sole according to the invention;

*Figure 7* is a side elevation of a complete shoe fitted with the sole illustrated in Fig. 6;

*Figure 8* is a longitudinal section through a seventh embodiment of a sole according to the invention;

*Figure 9* is a longitudinal section through an eighth embodiment of a sole according to the invention having a high heel; and

*Figure 10* is an exploded perspective view of a sole according to the invention having a high heel.

In the drawings, like parts are denoted by corresponding reference numerals.

Referring to the drawings, Fig. 1 shows the basic shape of a sole 1 according to the invention. Like those in the other exemplary embodiments, this sole 1 is preferably made from polyurethane, polyvinyl chloride or rubber. The inventive feature of the sole 1 is a border 2 which abuts on the inside of the upper after the sole 1 has been joined to the upper (not shown). Outside the border 2, the sole comprises a stitching edge 3 to which an upper or body portion is stitched by means of an outwardly directed edge.

Fig. 2 shows a sole 1 which is considerably raised at the edges in order to provide a particularly good seating for the foot. The stitching edge 3 may be constructed either as a flat, flange-like bead, as shown on the left of Fig. 2, or else may comprise a transitional portion to the sole 1, as shown on the right of Fig. 2.

The embodiment illustrated in Fig. 3 has a continuous projection 4 on the outside, by which the end of the outwardly directed edge of the upper is covered. This embodiment is designed for machine-stitched shoes. Recesses 9 in the stitching edge 3 promote the adhesion of the upper to the sole.

It is, of course, also possible to provide prefabricated holes in the stitching edge 3 to make handstitching easier. Fig. 4 shows one such sole with prefabricated holes 5,6. On the bottom 7 of the sole 1 there is provided a seam-protecting depression 8 into which the holes 5,6 open out. Fig. 4 also shows a lining sole 10 which is placed over the entire surface of the sole up to the border 2. The lining sole 10 may for example consist of a material with an antistatic or antimicrobial effect. As in the case of Fig. 2, the stitching edge 3 may comprise a flat, flange-like bead as shown in the left-hand half of Fig. 4 or it may comprise a transitional portion extending to the sole 1 as shown in the right-hand half of Fig. 4.

Fig. 5 shows a sole 1 intended for a sandal. This sole 1 is substantially thicker than those previously described. Foot seating 11 as a whole extends substantially higher than the stitching edge 3. Consequently, there is no need to provide a raised border inside the upper as in the other embodiments. A lining sole 10 is placed in a recess 12 in the sole 1 and this lining sole 10 may, of course, also be fastened by its outer edge to the sole 1. The sole according to Fig. 5 is a one-piece sole with an integral heel, foot seating and waterproofing. Recesses or markings may be used to indicate where the straps are to be secured such as by glueing. The sole may be designed either for handstitching, with prefabricated stitching holes, or for machine stitching.

In the embodiment according to Fig. 6, the stitching edge 3 is provided near the bottom surface 7 of the sole 1, regardless of the thickness of the sole. The continuous border 2 is of uneven height and, near the heel, forms a stiffening-type reinforcement 13. As in the embodiment illustrated in Fig. 4, an edge

projection 4 is provided on the stitching edge 3.

In Fig. 7, the sole 1 illustrated in Fig. 6 is joined to a body portion or upper 14. The sole 1 constitutes an inner assembly part over which the body portion can easily be pulled and provisionally tacked in place, glued on and stitched by hand or machine.

Fig. 8 shows a wedge-type sole 1 which, like the sole illustrated in Fig. 6, constitutes an inner assembly part.

The invention may also be used for high-heeled shoes, if the heel is not to be included in the upper. Examples of this are shown in Figs. 9 and 10. The sole 1 shown therein has a high heel 15 which can be attached to the sole 1 by screws 16 or studs 17, 18 after the upper has been stitched to the sole 1. Thus, the heel 15 does not get in the way during stitching and can be joined to the outer edge of the sole 1. If required, a reinforcement member 19 may be cast inside the sole 1.

CLAIMS

1. A thread-lasted shoe comprising an upper or body portion and a sole, wherein the upper has an outwardly directed edge and the sole has a stitching edge shaped to correspond to the shape of said edge of said upper, said edge of said upper being stitched to said stitching edge of the sole and the upper edge of said sole being higher than the stitching edge.

2. A thread-lasted shoe according to claim 1, wherein the sole has a continuous raised edge designed to be located inside the upper or body portion.

3. A thread-lasted shoe according to claim 2, wherein the continuous raised edge is of uneven height.

4. A thead-lasted shoe according to claim 2 or claim 3, wherein the continuous raised edge includes a stiffening-type reinforcement.

5. A thread-lasted shoe according to any preceding claim, wherein the outer edge of the sole has an upwardly extending projection.

6. A thread-lasted shoe according to any preceding claim, wherein the entire inner surface of the sole is covered by a lining sole.

7. A thread-lasted shoe according to any preceding claim, wherein the shoe has a thick sole and the stitching edge extends near the bottom surface of the sole, regardless of the thickness of said sole.

8. A thread-lasted shoe according to any one of claims 1 to 6, wherein the stitching edge extends near the upper edge of the sole and wherein a heel is attached to the sole after the upper or body portion has been stitched to the stitching edge of said sole.

9. A thread-lasted shoe substantially as described herein with reference to the drawings.

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